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An Account of a BOOK.

I. *The Anatomy of the Brain, containing its Mechanism and Physiology, together with some new Discoveries and Corrections of Ancient and Modern Authors upon that Subject : To which is annexed, A particular account of Animal Functions and Muscular Motion.* By Hen. Ridly *Col. Med. Lond. Soc.*

THE Reason why, after two such great Men as *Willis* and *Vieusseus*, our Author had engaged himself upon this subject, being given in the Preface, and an account of the different ways of Generation amongst the Moderns ; as also that there is an absolute necessity of Autopsie, for any well-grounded Notion being touched upon in the Introduction , to the end those many and strange Effects of Nature in either a regular or irregular course of acting observed in the Oeconomy of Humane Bodies may be accounted for, he enters upon and prosecutes the whole it self upon the aforementioned Foundation.

In the first Chapter he describes the *Dura Mater*, wherein he takes notice of a distribution of Fibres different from *Vieusseus*, as also that besides many other uses of these Fibres, by means thereof the causes of Vapours, and other Morbid Affections may be more properly assign'd than have hitherto been by many, particularly by Dr. *Mayow*, from a different disposition of these Membranes two processes from what hath been formerly described, he finds it to have other uses than what have hitherto

hitherto been observed, and that the first Process is wanting in several Creatures, with the reason thereof.

Chap. 2. A peculiar Structure and Disposition of the *Pia Mater* is observed, as being extended even over the *Corpus callosum*, and the in-side of all the Ventricles, that other Membrane taken notice of by *ohn* and *Bidloo*, as a middle one betwixt the *Dura* and *Pia Mater*, is found to be but a Duplicature of the *Pia Mater*. He also takes notice of the Mistake of *Willis* and other Moderns, concerning the Glands of this Membrane, with the occasion thereof.

In the third and fourth Chapters, is contained a Natural History of the Blood-vessels belonging to the Brain, wherein, besides a general account of them and many Errors hitherto committed concerning them, rectified, there is described a particular Disposition of those of the outward Integuments explaining several *Phænomena*, as some sort of Head-achs, Noises, &c. incident to that part. The manner of these Vessels entering, and their Distribution, being by the help of Injections of Quick-silver and several tinged Liquors, exactly discovered, prove very successful to the explaining the manner how and in what quantity the Animal Spirits are made, and how so vast a quantity of Blood, from whence they are produced, is conveyed to a part so tender as the Brain is, without any inconvenience.

Chap. 5 and *6.* treats of the *Sinus's*, together with their uses, wherein he observes those lately described by *Vieussenius*, as new, were first described by *Fallopis*, and after taken notice of by *Vidus Vidius*. The non-existence of *Vieussenius* his *Receptacula sellæ equinæ lateribus adjacentia*, is evinced, the occasion of the mistake assigned,

assigned, and another *Sinus* is there discovered, and called the *Circular Sinus* substituted in the room of those Receptacles, the seeming Pulsation of the Longitudinal and Lateral *Sinus*'s asserted by many of the former and late Anatomists, is manifestly by a plain Experiment in Vivisection denied, and the reason why they appear to beat demonstrated ; a new way of the Veins entering the *Sinus*'s, which together with the structure of the *Sinus*'s themselves, make up a Mechanism exactly adapted to the service of Nature, according to the various Positions Humane Creatures are at different times necessitated to put themselves in.

Chap. 7. gives a particular account of the *Plexus Choroideus*, whose original he finds double not before taken notice of : He also discovers a broad Connexion of both branches of this *Plexus* by the Intervention of the *Pia Mater*, serving to explicate some difficult *Phænomena* in *Tulpius* and *Wepfer*.. Amongst the Glands observed by all in this *Plexus*, he discovered several Lymphæducts, by which the enormous Opinions of *Willis*, *Vieussenius*, &c. is rejected, and their true use asserted.

Chap. 8 and *9*. He affirms the *Rete mirabile* to be as constantly found in Men as Brutes ; and the reason of its being bigger in Brutes, he looks upon as a provident design of Nature, to hinder the too hasty and copious fall of Blood upon the Brain in their prone Position, and equally hinders its Retrocession from the Brain, an inconvenience to which Man by reason of his erect posture, is no ways exposed, and therefore has this *Plexus* very small ; and Dogs by their Position and manner of feeding, are not so exposed to, as Pasture-feeding Creatures are ; so that in them it is much less than in such Creatures yet larger than in Men. To this *Plexus* he makes
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the *Glandula Pituitana* subservient, to which it sends many Ramifications, in reducing much of the arterious Blood, as it is also to the *infundibulum* (which he looks upon as a great *Lympheduct*) in reducing the *Lympha* separated in the form of Vapours within the Concavation of the Brain, and there condensed into that form. Here he observes this Gland in Men, not to be suspended in the *Sella Turcica* against *Vieussenius*, shewing the reason of this different Situation from Brutes. He observes the *Glandula Pituitaria* to be of two different substances, one accommodated for the conveyance of Blood, the other of *Lympha*, giving several reasons why it is rather a Secretory than Excretory Gland, receiving from the Brain by the *infundibulum* rather a profitable than unprofitable Liquor.

Chap. 10. Treats of the *Glandula Pinealis*, which by an Observation made in an Hydropick Body, he shews to be of the Conglobate, or Dymphatick kind, and the occasion of *des Cartes Phantasy*, *Vieussenius*, and several others Anatomists about its use is shewn:

Chap. 11. Gives an account of the constitutive parts of the Brain, properly so called, which are found to be of two Substances; the first taken notice of by *Archang. Piccolominius*, but more distinctly by *Leuwenhoek*; the reasons are assigned of the different Colours, this part appears to be of both, according to others, and his own Sentiments. The Generation, Existence, Motion or Dispensation of the *Animal Spirits* are here treated of; and by what appears from the nicest Test of Sense there, neither can nor need be any other *Idea* formed of them, than what

what is agreeable to a depurate Liquor, from whence they may not improperly deserve the denomination of *Animal Fluid*, answering all the intents of Nature, with relation to Animal Functions.

Chap. 12. After a recital of the various Opinions of most of the modern Writers about Muscular Motion, of which seeing many are repugnant to common Experience, and none of them sufficient to answer all the difficulties occurring about that action, he is obliged to inquire after a more adequate Hypothesis, built upon the properties of the Animal fluid, and structure of the Nervous and Muscular Fibres, and greatly favoured by an Experiment of injecting water into the Arteries of a Dog, by means whereof, doubts not, but that satisfaction may be universally given to any difficulty represented by, in that action.

Chap. 13. Here the Brain is considered, in regard to its particular conformation and all its parts, as they fall most naturally in dissection described, amongst which, he sees not how that part by *Vieussenius* substituted to that of the Ancients, for a *Fornix* does in any wise more properly deserve that name, that Office being performed quite another way. The Reason of the *Hippocampi* or *Bombyces*, being so called by *Aurantius*, is here given, and the Error of *Malpighius* about the *Striae* in those parts rectified. Dr. *Willis* mistakes the Situation of the *corpora striata*; a particular Medullary tract is observed running betwixt the *Thalami Nervorum Opticorum*, & *corpora striata*. The Tract by *Vieussenius*, called, *nervuti æmulus* is found to be much larger, and therefore to deserve

serve the name of *Nervus Valvula major* of *Vieussenius* was before him taken notice of by *Willis*; the way of finding it, easily discovered, its use according to *Vieussenius* in part disproved and the reasons given at large.

Chap. 14. What has been said of the *Cerebrum* may in a great measure be apply'd to the *Cerebellum*, the *Plexus Choroides* differs in Situation from that in the *Cerebrum*. The *Ventriculi* of this part, called by *Aurantius* *cisterna spirituum*, want nothing but the interstices of a *septum lucidum* to make it double, like that of the *Cerebrum*; several *Striae* larger than those of the *corpora striata*, are observed in the *Protuberantian annularis*; he takes notice of two *Medullary Processus's* about the beginning of the *calamus scriptorius*, the original of the soft branch of the auditory Nerve, not before observed, and also of two more *Medullary process* which terminate in these.

Chap. 15. The *Medula oblongata* is here described with many of its Appendixes, as the *Annular Protuberance*, *corpora Pyramidalia*, &c. where he rectifies a mistake of *Willis*, about the original of the eighth pair of Nerves.

Chap. 16. The ten Conjugations of Nerves proper to the Brain are here described, as to their origination, passage out of the *Cranium* and termination, as to which he differs from *Vieussenius* about the original of the Olfactory pair. Here is a curious Observation about the Blood Vessels, injected with *Quick-silver*, as it runs

runs through the Body of the Nerves. He looks upon the account *Willis* and *Vieussenius* gives of the Nervous Fibrils twining about the Optick Nerve erroneous. He Remarks, that the original of the third pair of Nerves, no way countenances *Willis*'s Hypothesis. He confirms the account of *Veslingius*, concerning the intercostal Nerve. The Auditory Nerves are observed to have two originals on each side, different one from another; the last Branch arising from the transverse Process, in the fourth Ventricle before taken notice of.

The spinal or accessory Nerve hath its original more remote than *Vieussenius* hath observed.

He takes notice there is no tenth *Foramen* at all, nor need be, as *Vieussenius* would have it. Here is given a particular description of the structure of a Nerve, as also an account of the Nature of the animal Fluid, how it differs from the parts containing it.

Chap. 17. In this last Chapter, after having shewn the distinct Offices of Nerves, with relation to the different Functions of Sense and Motion, some serving only for one, some for another, others for both, &c. also the Nature it self of those two Functions: He enters upon an enquiry into the power of the sensitive faculty, presiding over the Nervous Systeme, and of the manner of its executing the same, in doing whereof, he particularly examines the celebrated Hypothesis of Dr. *Willis*, hitherto so greatly countenanced within a manner, the universal suffrage of Modern Authors, in relation to the voluntary and involuntary acts of the Soul, therein indeavouring to restore the Brain to its ancient jurisdiction, over that Family of Nerves, by the said Author, made subject to the *cerebellum* only, demonstrating the identity of those actions, in Brutes which are reckoned the effects of meer instinct, with those in reasonable Creatures, by the same Author, called

led involuntary, which being granted to be under the power of the *Cerebrum*, for one must needs be allowed to be so, also in the other, and consequently deserving the name only of inadvertent, which actions are as proper to a rational Being, as those it takes never so much notice off, being commonly called Reflexed. Amongst those acts, he numbers Respiration, analogous to those of hunger and thirst, but all this while reserving actions purely natural, as under the meer Empire of the *Cerebellum*, confirming the truth thereof by an experiment made upon the Brain of a living *Quadrupede*. Here is a particular account given of the reason why Infants respire not whilst in *Utero*, and how it succeeds after their Birth. How much habits contribute to the more or less, early commencement of the Functions depending on the Medullary Systeme, is here considered, and the Office of the *Par Vagum* and *Intercostale*, particularly described after a different manner in many respects to that of Dr. *Willis*. The large Dominion of the Soul over the Nervous Systeme is here largely discoursed of; with a particular relation of an experiment made by *Caldeſe* upon *Tortoises*, and several Observations of Learned Men upon Human Bodies and Brutes, concerning that subject; he differs from the Sentiment of *Willis*, founded upon the Authority of *Aristotle*, touching Laughter and Sneezing, shewing how those two acts are confined in a manner altogether to rational Creatures. The Organization of the Brain, in respect to the different faculties of Apprehension, Judgment, &c. is here treated of, and the particular Medullary Tracts of the Brain, respecting the various organizations of the Nerves demonstrated, with some restriction to the Hypothesis of *Vieusſenius*. The use of the large *Striae* the Authour first observed in the annular Pro-cess,

cess, is here assigned, and the Reasons why the Medullary part of the Spinal Marrow is outward, and the cineritious inward, is here given.

The Author illustrates this ingenious Discourse with several new draughts of the Human Brain in several Postures and Sections, curiously graved on Copper Plates.

E R R A T A.

Transactions, Numb. 214.

Page 265. line 5. for succeeded, read exceeded.

L O N D O N :

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